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Crowley

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[54] **GYRICON DISPLAY WITH NO ELASTOMER SUBSTRATE**

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[52] U.S. Cl. **359/296; 345/107; 427/212**

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[57] ABSTRACT

A gyricon or twisting-ball display in which optically anisotropic particles, such as bichromal balls, are disposed directly in a working fluid, such as a dielectric liquid, without an elastomer substrate or other cavity-containing matrix. The display apparatus has an optically transmissive viewing surface, behind which the working fluid is disposed with the particles in it. The particles are arranged in a closely packed stable arrangement in which neighboring particles tend to keep one another in place. For example, the particles can be arranged in a hexagonally packed monolayer. The working fluid does not substantially constrain the particles to remain in the stable arrangement, notwithstanding the direct contact of the fluid with the particles.

31 Claims, 18 Drawing Sheets

